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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,704	03/09/2004	Toru Takayama	10873.1414US01	2943

7590 08/03/2006

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EXAMINER

FLORES RUIZ, DELMA R

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 08/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/796,704

Applicant(s)

TAKAYAMA, TORU

Examiner

Delma R. Flores Ruiz

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 - 16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8 - 15 is/are rejected.
- 7) ☒ Claim(s) 6, 7 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

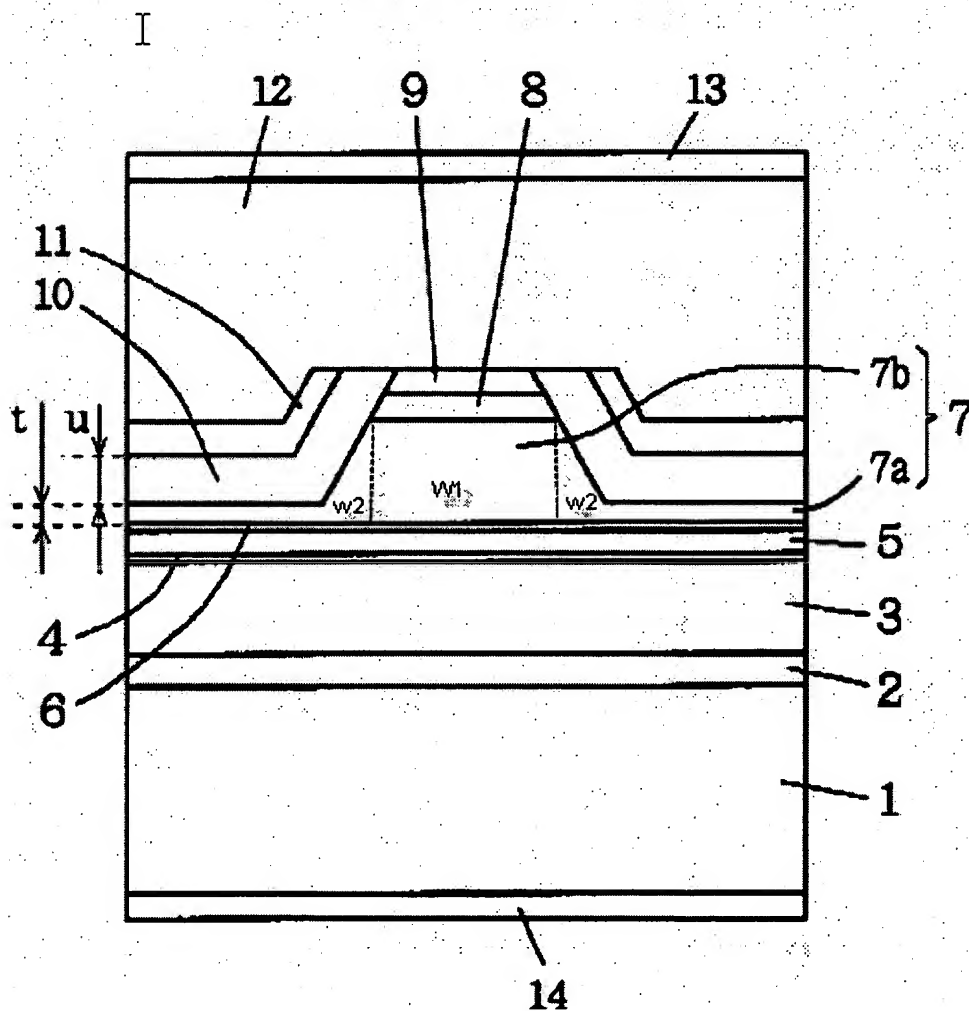
Claims 1 – 5, 8 – 9 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Hiroyama et al. (5,963,572).

***Regarding claims 1 and 15***, Hiroyama discloses in Figure 1 and 8 (see next page), a semiconductor laser device formed on a tilted substrate (1, Column 8, Lines 50 – 55) composed of a compound semiconductor, comprising an active layer (5) and two cladding layers (3 and 7) interposing the active layer (5) therebetween, wherein one of the cladding layers (7) forms a mesa-shaped ridge, the ridge includes a first region (7a) where a width of a bottom portion of the ridge is substantially constant in an optical path direction (W1), and a second region (7b) where the width of the bottom portion of the ridge is varied continuously (W2) in the optical path direction (Column 9, Lines 10 – 18),

and the second region (7b) is placed between the first region (7a) and an end face in an optical path, wherein a predetermined width of the first region (7a) prevents occurrence of kink in the first region (7a) and a predetermined width of the second region (7b) prevents thermal saturation in the second region (7b).

Hiroshima shown Figure 1.

FIG. 1



**Regarding claim 2**, Hiroyama discloses in Figures 1 and 8, the width of the bottom portion of the ridge in the second region (7b) is increased with distance from the first region (see Fig. 1, Character 7a).

**Regarding claim 3**, Hiroyama discloses in Figures 1 and 8, the second region (7b) is placed between the first region (7a) and one end face in the optical path, and between the first region (7a) and the other end face in the optical path (Figure 1 and 8).

**Regarding claims 4 and 5**, Hiroyama discloses in Figures 1 and 8, the width of the bottom portion of the ridge in the first region (7a) and second region (7b) is in a range of 1.8  $\mu\text{m}$  to 3  $\mu\text{m}$  (Column 9, Lines 16 – 18).

**Regarding claim 8**, Hiroyama discloses in Figures 1 and 8, the active layer (5) is formed of a quantum well structure (Column 8, Lines 66 – 67 and Column 9, Lines 1 – 5).

**Regarding claim 9**, Hiroyama discloses Figures 1 and 8, the active layer (5) in a vicinity of the end face in the optical path is disordered by diffusion of impurities (Column 11, Lines 55 – 65).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 10 – 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Doi et al (5,679,947).

***Regarding claim 10***, Doi discloses in Figure 6 and 7A-12C, an optical pickup apparatus (Abstract), comprising a semiconductor laser (see Fig. 6, Character 8) device and a light-receiving portion (see Fig. 6, Character 4) for receiving light output from the semiconductor laser device (see Fig. 6, Character 8) and reflected (see Fig. 6, Character 7) from a recording medium (see Fig. 6, Character 2), wherein the semiconductor laser device (see Fig. 6, Character 8 or see Fig. 7A – 12C) is formed on a tilted substrate (see Fig. 6, Character 9, Column 6, Lines 26 – 28) composed of a compound semiconductor, and includes an active layer (see Fig. 12C, Character 23) and two cladding layers (see Fig. 12C Characters 22 and 24) interposing the active layer (see Fig. 12C Character 23) therebetween, one of the cladding layers forms a mesa-shaped ridge (see Fig. 12C, Character 24), the ridge includes a first region where

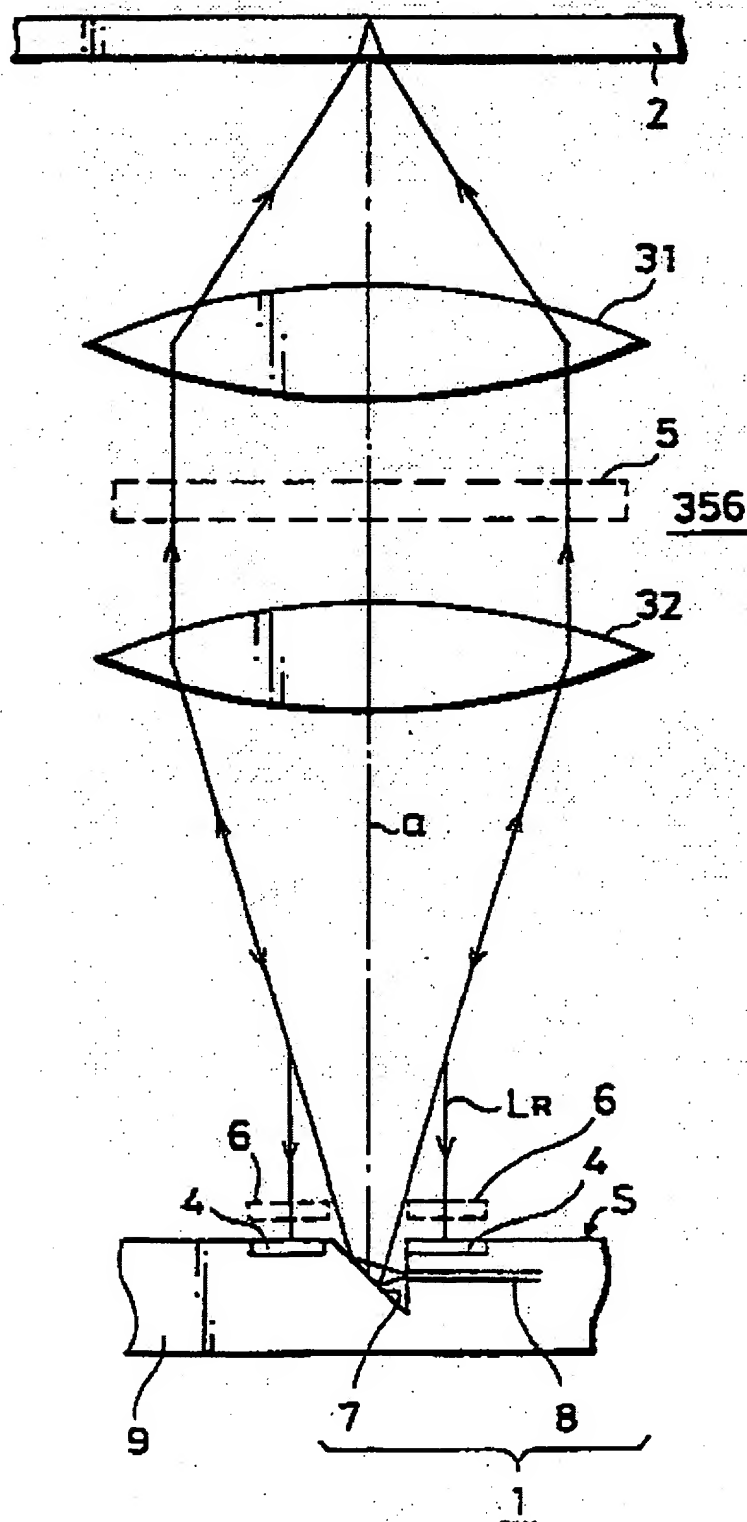
a width of a bottom portion of the ridge is substantially constant in optical path direction, and a second region where the width of the bottom portion of the ridge is varied continuously in optical path direction, and the second region is placed between the first region and an end face in an optical path (see Figure 7D – 8C, 12A – 12C, Column 10, Lines 18 – 50).

**Regarding claim 11**, Doi discloses in Figure 6, a light-splitting portion for splitting the reflected light, wherein the light-receiving portion receives the reflected light split by the light-splitting portion (Column 11, Lines 30 – 36 and Column 12, Lines 1 – 12).

**Regarding claim 12**, Doi discloses in Figure 6, the semiconductor laser (see Fig. 6, Character 8) device and the light-receiving portion (see Fig. 6, Character 4) are formed on the same substrate (see Fig. 6, Character 9).

**Regarding claim 13**, Doi discloses in Figure 6, an optical element (see Fig. 6, Character 7), wherein the optical element reflects light output from the semiconductor laser device (see Fig. 6, Character 8) in a direction normal to a principal plane of the substrate (see Fig. 6, Character 9).

FIG. 6





**Regarding claim 14**, Doi discloses in Figure 6, the optical element is a reflection mirror (see Fig. 6, Character 7).

### ***Allowable Subject Matter***

Claims 6, 7 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Response to Arguments***

Applicant's arguments filed 5/19/2006 have been fully considered but they are not persuasive. Applicant argues the prior art lacks; Hiroyama does not discuss or suggest a width of a bottom portion of a ridge in an optical path direction. The examiner disagrees with the applicant arguments since the prior art does teach a width of a bottom portion of a ridge in an optical path direction. In figures 1, characters 7a and 7b shown the two ridge regions, w1 represent the first region where a width of a bottom portion of the ridge is substantially constant in a optical path direction and w2 represent the second region where a width of a bottom portion of the ridge is varied continuously in the optical path direction as stated in the rejection above.

I.



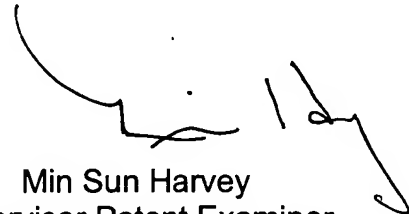
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Delma R. Flores Ruiz whose telephone number is (571) 272-1940. The examiner can normally be reached on M - F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Min Sun Harvey can be reached on (571) -272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Delma R. Flores Ruiz  
Examiner  
Art Unit 2828  
DRFR/MH  
July 28, 2006



Min Sun Harvey  
Supervisor Patent Examiner  
Art Unit 2828